Rec'd PCT/PTQ 202 BUL 2004

PATENT COOPERATION TREATY

10/502435



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

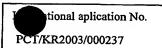
(PCT Artcle 36 and Rule 70)

REC'D	1	5	JUN	2004	
WIPC)			PCT	

Applicant's or agent's file reference	POD WYDWIED ACTION	SeeNotification	onofTransmittalofInternation	alPreliminary	
OPP020428KR	FOR FURTHER ACTION	Examination I	Report (Form PCT/IPEA/41)	9	
1	International filing date(day/mo	-	Priority date (day/month/y	•	
PCT/KR2003/000237	03 FEBRUARY 2003 (0		05 FEBRUARY 2002 (0:	5.02.2002)	
International Patent Classification (IPC)	or national classification and IP	С	•		
IPC7 C07C 68/06					
Applicant					
	•				
LG CHEM, LTD. et al					
	1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.				
2. This REPORT consists of a total of	of 4 sheets, inclu	ding this cover sl	neet.		
	This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule				
	e Administrative Instructions un	ider the PCT).			
These annexes consist of a total of	of sheets.				
3. This report contains indications re	elating to the following items:				
I X Basis of the report					
II Priority					
III Non-establishment o	of opinion with regard to novelty	y, inventive step ε	and industrial applicability		
IV Lack of unity of inv	ention				
	t under Article 35(2) with regard ations supporting such statemen		ntive step or industrial applic	cability;	
VI Certain documents cited					
VII Certain defects in th	e international application				
VIII Certain observations	s on the international application	1		i	
· · ·					
Date of submission of the demand	Date	of completion of	f this report		
02 SEPTEMBER 2003 (02.09.2	(003)	02 JUNE 20	04 (02.06.2004)		
Name and mailing address of the IPEA/	** ***********************************	The second second			
Korean Intellectual Property 920 Dunsan-dong, Seo-gu, Republic of Korea	y Office	SHIN, Gun Il			
Facsimile No. 82-42-472-7140	Tele	ephone No. 82-4	2-481-5543	4.4116.41	



INTERNATIONAL PRELICENCY EXAMINATION REPORT



I	Basis	is of the report				
1.	With	regard to the elements of the international application:*				
	the international application as originally filed					
	$\overline{\sqcap}$	the description:				
	 1	pages	, as originally filed			
Ì		pages	, filed with the demand			
		pages, filed with the letter of				
		the claims: pages				
			, as originally filed with any statment) under Article 19			
		pages	, filed with the demand			
	_	pages, filed with the letter of				
	Ш	the drawings:				
		pages				
		pages	, filed with the demand			
		the sequence listing part of the description:				
		pages	. as originally filed			
		pages	, filed with the demand			
		pages, filed with the letter of				
2.	the i	th regard to the language, all the elements marked above were available or furnished to the international application was filed, unless otherwise indicated under this item. See elements were available or furnished to this Authority in the following language the language of a translation furnished for the purposes of international search (under the language of publication of the international application (under Rule 48.3(b)). the language of the translation furnished for the purposes of international preliminary or 55.3).	English which is Rule 23.1(b)).			
 With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing: contained in the international application in written form. filed together with the international application in computer readable form. 						
		furnished subsequently to this Authority in written form.				
		furnished subsequently to this Authority in computer readable form				
		statement that the subsequently furnished written sequence listing does not go beyond the disc losure in the national applicationas as filed has been furinshed. statement that the information recorded in computer readable form is identical to the written sequence listing has furnished.				
4.	\Box	The amendments have resulted in the cancellation of:				
		the description, pages the claims. Nos.				
		the claims, Nos. the drawings, sheet				
5.		the drawings, sheet				
		This report has been established as if (some of) the amendments had not been made go beyond the disclosure as filed, as indicated in the Supplemental Box(Rule 70.2(c)	e, since they have been considered to).**			
	Replac in this and 70	acement sheets which have been furnished to the receiving Office in response to an invitors sopinion as "originally filed." and are not annexed to this report since they do not co 20.17).	ation under Article 14 are referred to contain amendments (Rules 70.16			
**	Any re	replacement sheet containing such amendments must be referred to under item I and am	nexed to this report,			

V.	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicabi	lity;
	citations and explanations supporting such statement	•

Claims	1-5	YES
Claims	None	ЙО
Claims	None	YES
Claims	1-5	МО
ity (IA) Claims	1-5	YES
Claim	None	NO
	Claims Claims Claims lity (IA) Claims	None None

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

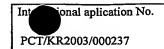
D1: EP 0855384 A D2: JP 04-224547 A

1. The present invention relates to a method for the continuous production of an aromatic carbonate by reacting a dialkyl carbonate and an aromatic hydroxyl compound in the presence of a heterogeneous catalyst, in a loop-type, catalyst-containing reaction apparatus, wherein a reactor equipped with a filter in which the catalyst is contained is connected with a heat exchanger portion for providing necessary heat during reaction, a reaction solution is circulated between the catalyst-containing portion and the heat exchanger portion via a circulation pump, and by-products can be eliminated via a distillation column connected with the reactor; and a reaction apparatus for the production of an aromatic carbonate.

D1 discloses a method for continuously producing an aromatic carbonate in the presence of a metal-containing catalyst in a reactor, while continuously withdrawing a high boiling point reaction mixture in liquid form from a lower portion of the reactor and continuously withdrawing a low boiling point reaction mixture containing a by-product in gaseous form from an upper portion of the reactor by distillation; and a reaction apparatus for the production of an aromatic carbonate.

D2 discloses a method for the production of an aromatic carbonate by containing a solid catalyst such as silica or titania in a reactor; and an apparatus for the production of an aromatic carbonate.

(Continued on Supplemental Sheet.)



Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of:

Box V.

The present invention and the inventions of D1 and D2, all of which relate to a method for producing an aromatic carbonate, are in the same technical field. In addition, the reactor configuration of the present invention is the same as that of D1 in that a heat exchanger is connected with a lower portion of the reactor, and that a distillation column is connected with an upper portion of the reactor. Further, the operational principle of the reactor in the present invention is the same as that of D1 in that a reactant is introduced into the reactor, a high boiling point reaction mixture passes through the heat exchanger and then recirculates to the reactor; and that a low boiling point reaction mixture is eliminated by distillation in the distillation column and then recirculates to the reactor. The present invention shows a difference in the configuration of the reactor because a filter is provided in the inside of the reactor to prevent a heterogeneous catalyst from flowing out into a lower portion of the reactor. However, D2 discloses a method for producing an aromatic carbonate in a reactor containing a solid catalyst such as silica or titania, and it is obvious to a person skilled in the art to install a filter in the inside of a reactor to prevent a solid catalyst from flowing out into a lower portion of th reactor.

Accordingly, a person skilled in the art could have readily obtained the present invention by combining the teachings of D1 and D2, and no particular technical difficulty is found in the configuration of the present invention. In addition, the present invention does not exhibit any sharply improved effect beyond the combination of the effects of D1 and D2.

Therefore, the present invention does not meet the requirement of PCT Article 33(3).